

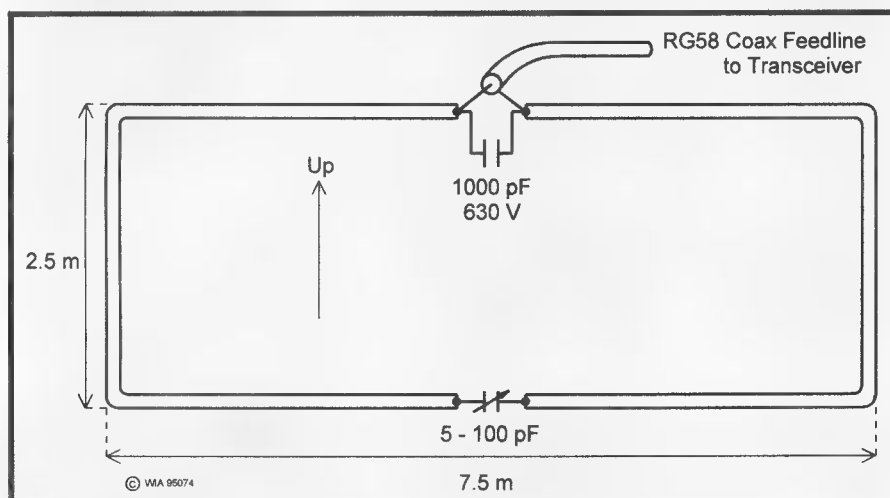
■ Antennas

A Compact 80 m Loop Antenna

Peter Parker VK1PK* describes a nifty little 80 m antenna for a confined space.

It is often difficult to erect a full-size antenna for 80 m when operating from a confined space. While very short

tuned feeder dipoles can be made to work on 80 m, their efficiency tends to be low (Moxon:222). The loop antenna



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WIA News

Some Clarification

The US claim for a 2 m distance record of 4333 km for a contact between Hawaii and Washington state last July, reported in *WIA News*, October *Amateur Radio*, page 18, has occasioned correspondence that there have been 2 m contacts over greater distances.

VK4IK wrote that, more than 13 years ago as VK8HW, he contacted JR6LHX for a confirmed distance of 4969.7 km. Since then, according to Federal Technical Advisory Committee Chairman, John Martin VK3KWA, that record has been broken on at least three recorded occasions, the most recent being a contact between VK4BFO and JI7DMB on 15 April

1991, for a confirmed distance of 6763 km, a world record.

These Australia-Japan contacts were all via Class II transequatorial propagation (TEP), an ionospheric mode. The ARRL report cited in October *WIA News* claimed the contact as an "over water" record, apparently involving tropospheric propagation, a distinction made in the US but not made in Australia.

An August *WIA News* item warning about the use of FM below 29 MHz did not make the clear point that this meant wideband FM (16K0F and 16K0G modes). Narrowband FM (6K00F and 6K00G modes) has, of course, been permitted on the HF bands for many years and is permitted in the latest Technical Licence Specifications. It is wideband FM that is not permitted below 29 MHz.

described here occupies little space, yet provides good results for distances of up to about 800 km.

There being no reference antenna available, comparative gain figures are unavailable. However, I would estimate that signals from this antenna would be about two S-points down on a dipole. The antenna described here is approximately 10 metres above the ground.

Reference 2 (p298) provided the basic idea for this antenna. The loop is made from coaxial cable; RG8 is preferred because of lower DC losses. This version uses lengths of the thinner RG62A/U. Excluding the feedline, which can be of any length, this antenna uses 20 metres of cable. The length of the element does not appear to be critical, as a previous successful version of this antenna was made from less than 19 metres of cable.

A 1,000 pF polystyrene capacitor is wired across the antenna's feedpoint. This facilitates impedance matching. The one in the prototype is rated at 630 volts, and was salvaged from a piece of valve equipment.

The antenna is tuned by adjusting the variable capacitor at the bottom of the antenna. This capacitor should have widely-spaced plates if you intend to run appreciable power. No arcing has been observed with 50 watts and a capacitor having a 1 mm plate spacing. If you have no suitable capacitor, you may care to experiment with lengths of 300 ohm TV ribbon to obtain a suitable capacitance; the original version of this antenna, described in reference 2 below, uses this technique. While this antenna is balanced, no balun has been found necessary.

You will notice that received signals sound weaker on this antenna than on a full-sized dipole. However, loops pick up less noise than do other antennas, so the signal-to-noise ratio of incoming signals may well be better with the small loop than on a dipole or vertical.

If you wish to work DX on this antenna, you will be disappointed. On the other hand, if you have only a small amount of space and wish to use 80 m, this antenna can provide worthwhile results.

References

1. Moxon, LA — *HF Antennas for All Locations*, RSGB, 1982.
2. Hawker, P — *Amateur Radio Techniques 7th Edition*, RSGB, 1980.

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